

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

January 30, 2004

10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
11555 Rockville Pike  
Rockville, Maryland 20852

Serial No. 03-459B  
NL&OS/GDM R3  
Docket No. 50-281  
License No. DPR-37

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)**  
**SURRY POWER STATION UNIT 2**  
**SIXTY-DAY RESPONSE TO NRC BULLETIN 2003-02**  
**LEAKAGE FROM REACTOR PRESSURE VESSEL LOWER HEAD PENETRATIONS**  
**AND REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY**

On August 21, 2003 the NRC issued NRC Bulletin 2003-02, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity." The bulletin informed licensees that in light of the previous indications of cracking on the upper RPV head penetrations in the industry and the recent leakage indications on the two lower RPV head penetrations at South Texas Project Unit 1, the current methods of inspecting the RPV lower heads may need to be supplemented with additional measures (e.g., bare-metal visual inspections) to detect reactor coolant pressure boundary (RCPB) leakage. The bulletin requested licensees to provide a description of their reactor pressure vessel (RPV) lower head penetration inspection programs that they have previously implemented at their plants, as well as a description of the RPV lower head penetration inspection programs that they will be implementing during the next and subsequent refueling outages. This information was provided for Surry Units 1 and 2 in a letter dated September 22, 2003 (Serial No. 03-459).

The bulletin also requested that within 60 days of plant restart following the next inspection of the RPV lower head penetrations, subject PWR addressees should submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found. Dominion performed the requested inspection of the RPV lower head penetrations during the Fall 2003 refueling outage that was completed on December 3, 2003. The requested 60-day response documenting the inspection of the RPV lower head penetrations for Surry Unit 2 is provided in the attachment.

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If you have any questions or require additional information, please contact Mr. Gary D. Miller at (804) 273-2771.

Very truly yours,



L. N. Hartz  
Vice President – Nuclear Engineering

Attachment

Sixty-Day Response to NRC Bulletin 2003-02, Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity, Surry Power Station Unit 2

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission  
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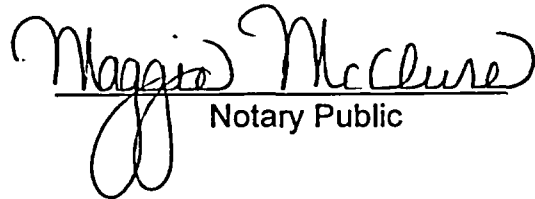
Mr. R. A. Smith – ANII  
Surry Power Station

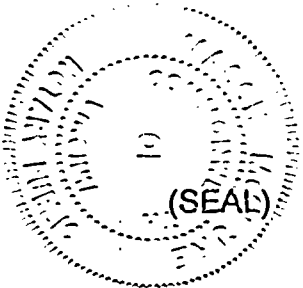
COMMONWEALTH OF VIRGINIA     )  
                                          )  
COUNTY OF HENRICO            )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Leslie N. Hartz, who is Vice President - Nuclear Engineering, of Virginia Electric and Power Company. She has affirmed before me that she is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of her knowledge and belief.

Acknowledged before me this 30th day of January, 2004.

My Commission Expires: March 31, 2004.

  
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Notary Public



**ATTACHMENT**

**Sixty-Day Response to NRC Bulletin 2003-02**  
**Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor**  
**Coolant Pressure Boundary Integrity**

**Surry Power Station Unit 2**  
**Virginia Electric and Power Company**  
**(Dominion)**

**Sixty-Day Response to NRC Bulletin 2003-02**  
**Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor**  
**Coolant Pressure Boundary Integrity**

**Surry Power Station Unit 2**

On August 21, 2003 the NRC issued Bulletin 2003-02, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity." The bulletin requested licensees to provide information related to inspections that have been performed to verify the integrity of the reactor pressure vessel (RPV) lower head bottom-mounted instrumentation (BMI) penetration nozzles within sixty-days of the completion of the outage in which the inspections were completed. The sixty-day response for Surry Power Station Unit 2 is provided below.

**Requested Information**

*Within 60 days of plant restart following the next inspection of the RPV lower head penetrations, subject PWR addressees should submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found.*

**Response**

Station Procedure 0-NSP-RC-003, *Visual Examination of Reactor Pressure Vessel Bottom Mounted Instrumentation (BMI)*, was performed on the RPV lower head to inspect for any potential boric acid leakage from the bottom-mounted instrumentation nozzles. An as-found inspection for evidence of boric acid leakage on the outside of the RPV lower head insulation was performed prior to any insulation removal. No evidence of leakage was discovered. Following the as-found insulation inspection, the center panel of the lower head insulation (approximately seven-feet in diameter) was unfastened from the remaining insulation and lowered to the support structure thus allowing access to the majority of the instrumentation nozzles. The remaining nozzles that could not be accessed by removing the center insulation panel were accessed by removing insulation locally. The nozzle inspection was performed by either direct visual inspection or by visual inspection aided by the use of mirrors. Where conditions permitted camera access, digital photography was used to record portions of the inspection. A 360-degree bare-metal visual examination of the 50 bottom-mounted instrumentation penetration nozzles was performed with no evidence of leakage observed.

The bottom of the RPV was also inspected for contour changes that would be indicative of wastage. This was accomplished by adjusting light angles and observing the curvature and contour of the bottom shell. No areas of wastage were noted.

Following refueling activities, the bottom of the RPV was cleaned, and an as-left inspection was performed prior to insulation being replaced. This inspection was performed to ensure that there was no boric acid residue from other sources (e.g., reactor cavity seal leakage) remaining on the vessel bottom in the area of the bottom mounted instrument nozzles, and to provide a suitable baseline for future inspections.